

2.2 – Basic Probability Concepts

- **probability** → represents the fraction of _____
- The probability of an event occurring is always _____
 - The closer the probability of an event is closer to _____ then the _____ the event will occur
 - The closer the probability of an event is closer to _____ then the _____ the event will occur
 - Probability can be represented using a _____ or using _____
 - Probability is stated as a number in three forms: _____ , _____ , and _____

Example 1: Determine the probability using a tree diagram in its three forms.

a.) When two coins are tossed, what is the probability that there will be at least a tail?	b.) A woman wants three children, what is the probability that she will have 2 boys?
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Example 2: Determine the probability using combinations as a percent.

a.) Ebony has 4 male kittens and 7 female kittens. She picks up 2 kittens to give to a friend. Find the probability for the following:		b.) Bob is moving and all of his CDs are mixed up in a box. Twelve CDs are rock, eight are jazz, and five are classical. If he reaches into the box and selects them at random, find the probability for...	
i.) P (2 male)	ii.) P (2 female)	i.) P (1 classical)	ii.) P (3 jazz)
		iii.) P (2 classical ,1 rock)	
iii.) P (1 of each)	iv.) P (1 male , 2 female)	iv.) P (2 jazz , 3 reggae)	
		v.) P (1 classical , 1 jazz , 2 rock)	

Example 3: Use the table that shows the college majors of the students who took the Medical College Admission Test (MCAT) in April 2000.

If a student taking the test were randomly selected, find each probability.
Please express answer as a rounded percent.

a.) P (math or statistics)

b.) P (biological sciences)

c.) P (social sciences or humanities)

Major	Students
biological sciences	15,819
humanities	963
math or statistics	179
physical sciences	2770
social sciences	2482
specialized health sciences	1431
other	1761

– **geometric probability** → represents the fraction of _____

Common Area Formulas You SHOULD KNOW:

Area of Square → _____

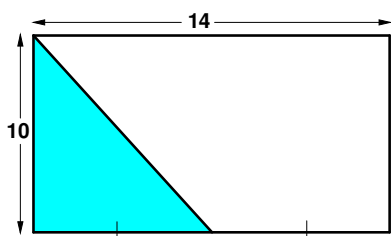
Area of Rectangle → _____

Area of Triangle → _____

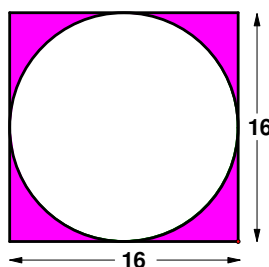
Area of Circle → _____

Example 4: Find the geometric probability for each given situation/diagram. Express as a percent.

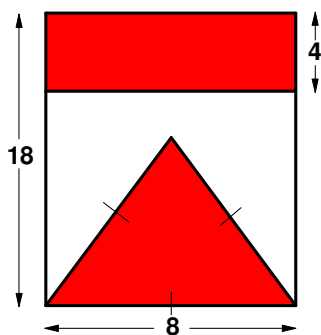
- a.) A coin is thrown from a ladder.
Find the probability of the coin landing in the shaded region.



- b.) A rock is thrown from a second story building.
Find the probability of the rock landing in the shaded region.



- c.) A dart is thrown at the dart board below. Find the probability that the dart landed in the shaded region.



- d.) An archery target has 5 scoring zones formed by concentric circles. The radius of the yellow zone is 12.2 cm and the width of each ring is also 12.2 cm. If an arrow hits the target at a random point, what is the probability that it hits any area of the red zone?

